A Workers’ Survey on Exposure to Carcinogens in the European Union – Utility, Reliability and Feasibility

Session: How to survey health and safety at work in the changing world of work? Theory, challenges and practice
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EU-OSHA - Who we are

The European Union body responsible for the collection, analysis and dissemination of relevant information to serve the needs of those involved in safety and health at work.

- One of 40 EU agencies
- Governed by European law
- Mostly financed from the general EU budget
- Independent in the execution of its mission/tasks
- A tripartite network organisation, closely linked to EU actors and national networks through the national focal points
- Legislation - inspection
Origin of the project

- Exposure to carcinogens at work contributes to many cancer cases
- More than half of work-related fatalities in the European Union are related to cancer
- Need for harmonised and comparable data on exposure to carcinogens
- Existing and unique survey in Australia (AWES cancer, 2012)
Aiming for a consensus

- Feasibility study on a survey on exposure to cancer risks (2017)
- Results and recommendations of the study discussed with experts and with our executive Board (2018)
- Scientific consensus on:
  - the feasibility of running a robust exposure survey
  - the value of the anticipated results in terms of their reliability
  - the extent to which such results would meet a widely-identified need
  - the absence of a viable alternative to meeting this need.

1st phase of the survey in our work programme from 2020

Complementarity to other existing data

- Epidemiological studies on carcinogens
- International databanks e.g. IARC list of carcinogens
- Various national data sources on exposure to carcinogens
  - registers
  - surveys
- European-wide data sources
  - European Working Conditions Survey (EWCS): general question
  - European Occupational Diseases Statistics (EODS): different definition in all member states
  - HazChem@Work: measurement data on exposure to chemicals

But national language and lack of harmonisation
Measurement data complementary to the survey

- Consensus of consulted experts on complementarity
- The survey might identify an area which needs more investigation.
- Measurement data can inform the questions in the exposure survey, in particular ensuring that the major sources of exposure in all countries are covered.
- The survey results could be compared to existing measurement data in different member states and this would facilitate their interpretation (tasks, exposure duration, etc).
- It would be possible to refine and correlate results of the survey with exposure measurement data in the future.

A more accurate picture of exposure to cancer risk factors
Information needs addressed with the survey

- Cancer risk factors responsible for most of the exposures
- Exposure *circumstances most prevalent in Europe* (context and conditions)
- **Overall number of workers exposed to each cancer risk factor** and to **multiple cancer risk factors** (exposure estimates)
- **Characteristics of workers** exposed to cancer risk factors
- **Frequency, extent and intensity** of all exposures can be included
- Use of preventive measures, e.g. personal protection equipment (PPE)
- Information on workers’ awareness of risk can be included
Envisaged follow-up actions to the survey

- **Better identification** of risk factors
- **Better targeted awareness-raising** about exposure to cancer risk factors
- **Prioritisation** of sectors, occupations, tasks and cancer risk factors for prevention purposes
- **Better design and targeting of preventive measures**
- Contribution to **evidence base for policy**, including evaluation
Survey methodology – main features

- A telephone survey with workers
- A standardised questionnaire with modules customised for a broad variety of jobs (more than 50)
- Short, precise and factual customised questions about tasks
- Possible exposure to 46 cancer risk factors, going beyond substances (e.g. radiation and night shift)
- Probability of exposure assessed by experts, using OccIDEAS tool
- Possible multiple exposure situations for a person
- A large number of risk factors covered, not only cancer risk factors
Survey coverage of risk factors and substances

About 46 cancer risk factors – combined exposure:

- **Industrial chemicals** (formaldehyde, ethylene oxide, acrylamide, o-Toluidine, 1,3-Butadiene, …)
- **Inorganic dusts** (asbestos, silica)
- **Metals** (Chromium VI, cadmium, arsenic, beryllium, nickel, cobalt, lead …)
- **Mineral oils**
- **Organic dust** (e.g. wood dust)
- **Combustion products** (diesel exhaust, tobacco smoke)
- **Solvents** (benzene, trichloroethylene, …)
- **Pesticides**
- **Radiation** (UV radiation, ionizing radiation, …)

http://osha.europa.eu
Advantages of the survey

- Harmonised methodology and standardised data collection across Europe
- Based on a very sophisticated, well-elaborated and extensively tested concept tool: OccIDEAS (algorithms previously defined on the basis of expert knowledge)
- High degree of cross-national comparability due to objective questioning and classification, based on questionnaires translated with high quality standards
- More complete view on multiple exposures
- Analysis of exposure by demographic characteristics and characteristics of the workplace; vulnerable groups can be identified
## Alternative options for survey implementation

<table>
<thead>
<tr>
<th>Limited depth (small national sample sizes: 1,000 interviews)</th>
<th>Incomplete coverage of countries (6-8 selected countries)</th>
<th>Complete coverage of countries (all countries)</th>
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<tbody>
<tr>
<td><strong>OPTION 1</strong></td>
<td></td>
<td>• Low level of details i.e. no sectoral analysis</td>
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<td>• Reduced impact of the survey</td>
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<td>• Limited cost</td>
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<td>Full depth (full sample size: 3,000 interviews)</td>
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<td><strong>OPTION 3</strong></td>
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<td>• High level of details i.e. reliable information by sector</td>
<td>• Full analysis and comparability</td>
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<td>• Phased approach</td>
<td>• High cost</td>
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<td></td>
<td>• Limited cost</td>
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**All options**: no difference as regards the number of cancer risk factors and questions.
Not a conventional workers’ survey

- **Target population: working population** (structure based on Labour Force survey data)
- **Representative data and possible coverage of hard-to-reach workers** (e.g. self-employed, family workers, workers in MSEs)
- **Low expected bias** (unequal non-response can be corrected by weighting)
- **Large sample size**: lower survey error
- Good training of interviewers and factual questions: low measurement error and low reporting bias
- **Data collection via CATI** and CAWI as a complementary data collection?
Strenghts of a phased approach

- High level of details: **reliable information** by sector and occupation
- **Relevant results** for all Member States by extrapolation
- Useful data for **prevention purposes**
- **A solid basis for a future decision on a subsequent phase** (complete coverage of countries)

**Planning**

- 2019: one expert meeting to help in the selection of countries, sectors, cancer risk factors…
- 2020: preparatory work
- 2021-2022: survey development and execution
- 2023: publications of first findings and dissemination
- 2024: **evaluation of the exercise and decision on the potential expansion**
Challenges and limitations

- **Decisions to be taken for starting implementing the survey**
  - Selection of countries (representative of their area)
  - Final list of risk factors (fewer possible but no more)
  - Sampling design

- **Adaptation to Europe**
  - Identification of occupational hygiene experts to validate the questionnaire at national level
  - Need for experts’ engagement over time
  - Translation to national language: simple questions but very specific to the job (need for a glossary)

- **Fieldwork**
  - Same limitations as any telephone population survey
  - Training of interviewers